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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,927	02/17/2004	B. Mark Hirst	200309715-1	1900

22879 7590 07/28/2011

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

EXAMINER	
PATEL, RAJNIKANT B	
ART UNIT	PAPER NUMBER
2838	

NOTIFICATION DATE	DELIVERY MODE
07/28/2011	ELECTRONIC

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JERRY.SHORMA@HP.COM
ipa.mail@hp.com
laura.m.clark@hp.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte B. MARK HIRST

Appeal 2009-007120
Application 10/780,927
Technology Center 2800

Before ALLEN R. MACDONALD, ERIC S. FRAHM, and
JASON V. MORGAN, Administrative Patent Judges.

MORGAN, Administrative Patent Judge.

DECISION ON APPEAL

STATEMENT OF THE CASE

Introduction

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1, 7 – 9, 17 – 20, 31 – 59. We have jurisdiction under 35 U.S.C. § 6(b).

Exemplary Claims

1. An apparatus comprising:

an AC switching circuit;

a control circuit coupled to the AC switching circuit; and

a biasing snubber circuit coupled to the switching circuit and the control circuit to capture energy from a circuit switched by the switching circuit and to provide at least a portion of the captured energy to bias the control circuit.

31. A snubber circuit comprising:

a first energy storage device;

circuitry coupled to the first energy storage device to facilitate capturing, by the first energy storage device, energy of a switching circuit and to facilitate resetting of the first energy storage device; and

a second energy storage device coupled to the first energy storage device to store the captured energy and to provide at least a portion of the captured energy to a control circuit.

(App. Br. 24 and 28 – 29; Claims App'x).

Rejections and Appellant's Contentions

Appellant contends that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 102(b) as being anticipated by Guerrera (US 5,923,152) because:[1]

> First, the snubber circuit of Guerrera is NOT coupled to an AC switching circuit. In contrast, the snubber circuit disclosed by Guerrera is merely connected to a DC switching circuit. . . . [I]f the circuit shown in Figure 2 of Guerrera were alternatively employed with an AC switching circuit, during the negative half cycle of the AC waveform, diode 66 or switch 40 would experience an uncontrolled voltage causing diode 66 or switch 40 to be destroyed.
>
> Second, Guerrera fails to disclose an apparatus having a snubber circuit that captures energy from a circuit switched by switching circuit and that provides at least a portion of the captured energy to bias a control circuit. In contrast, Guerrera merely discloses a circuit wherein energy captured by a snubber circuit is retransmitted back to its load. The captured energy is not used to bias a control circuit.

(App. Br. 11 – 12).

Appellant contends that the Examiner erred in rejecting claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Guerrera because:

> First, the Examiner has failed to indicate what specific parts one of ordinary skill in the art would allegedly "reverse" in Guerrera.
>
> Second, any rearrangement of "parts" in the circuit of Guerrera would clearly change the principle of operation and attended functioning of the circuit of Guerrera.

(App. Br. 16).

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[1] Separate patentability is not specifically argued for dependent claims 7, 9, and 17 – 20.

Appellant contends that the Examiner erred in rejecting claim 31 under 35 U.S.C. § 102(b) as being anticipated by Church (US 6,055,161) because:

> First, as one of ordinary skill in the art would recognize, the boost converter circuit shown in Figure 2 of Church (relied upon by the Examiner to reject Claim 31) does not transfer captured energy from a switching circuit from a first energy storage device to second energy storage device. Captured energy is not transferred from capacitor 102 to capacitor 104 or vice versa. In contrast, with the circuit shown in Figure 2, capacitors 102 and 104 are simultaneously charged or discharged. The circuit shown in Figure 5 also simultaneously charges and discharges its capacitors.
>
> Second, Church does not provide captured energy to a control circuit. In contrast, any captured energy is provided to the load.

(App. Br. 13).

Appellant contends that the Examiner erred in rejecting claim 47 under 35 U.S.C. § 103(a) as being unpatentable over Guerrera and Dan-Harry (US 5,485,365) because:

> The Examiner cannot even point to what he considers to be the current limiting device or where Dan-Harry allegedly switches the current-limiting device into circuit when a snubbing capacitor is reset. The Examiner merely makes the conclusory and unsupported statement that "Dan-Harry teaches utilization of the similar technique for current limiting device (figure 2)." (Office Action dated December 31, 2007, page 5).

(App. Br. 19).

Appellant contends that the Examiner erred in rejecting claim 52 under 35 U.S.C. § 102(b) as being anticipated by Guerrera because:

> [C]laim 52 further recites that the switching circuit includes a first transistor and a second transistor, the first

> transistor and a second transistor having source terminals connected in common.
>
> Guerrera fails to disclose first and second transistors having source terminals connected in common. In direct contrast, Guerrera requires that its switching devices be connected source to drain. For example, switching devices 40 and 46 of Figure 2 are connected source to drain. Switching devices 40 and 46 to not have source terminals connected in common.

(App. Br. 12).

ISSUES

1. Did the Examiner err in finding that Guerrera teaches a biasing snubber circuit coupled to an AC switching circuit?

2. Did the Examiner err in finding that Guerrera teaches a biasing snubber circuit captures energy from a circuit switched by a switching circuit and provides a portion of the captured energy to bias a control circuit?

3. Did the Examiner err in finding that Guerrera teaches or suggests the recitations of claim 8?

4. Did the Examiner err in finding that Church teaches capturing energy with a first energy storage device and storing the captured energy with a second energy storage device?

5. Did the Examiner err in finding that the combination of Guerrera and Dan-Harry teaches or suggests an AC switching circuit configured to switch a current limiting device into circuit when a snubbing capacitor is reset?

6. Did the Examiner err in finding that Guerrera teaches a first transistor and a second transistor having source terminals connected in common?

ANALYSIS

We have reviewed the Examiner's rejections in light of Appellant's arguments (Appeal Brief and Reply Brief) that the Examiner has erred.

We disagree with Appellant's conclusions with respect to claims 1, 7, 9, 17 – 20, 46, and 52. With respect to these claims, we adopt as our own (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken and (2) the reasons set forth by the Examiner in the Examiner's Answer in response to Appellant's Appeal Brief. Except with respect to claims 8, 31 – 51, and 53 – 59, we concur with the conclusions reached by the Examiner.

(1) Whether the Examiner erred in finding that Guerrera teaches a biasing snubber circuit coupled to an AC switching circuit

Guerrera discloses that "a rectified AC signal is supplied to the circuit [of Figure 2] at input terminals 32,34" (col. 2, ll. 37 – 38). We do not agree with Appellant that the claimed "AC switching circuit" must receive an unrectified (as opposed to a rectified) AC signal. Also, we do not agree with Appellant that there is a patentable distinction between an "AC switching circuit" and a "rectified AC switching circuit." Moreover, we do not agree with Appellant that the circuit shown in Guerrera (Fig. 2) is not employable as an AC switching circuit. We also do not agree with Appellant's assertion that such use would destroy diode 66 or switch 40.

Accordingly, the Examiner has not erred in the rejection of claim 1 and dependent claims 7 – 9, 17 – 20, and 46 – 51.

(2) Whether the Examiner erred in finding that Guerrera teaches a biasing snubber circuit captures energy from a circuit switched by a switching circuit and provides a portion of the captured energy to bias a control circuit

We do not agree with Appellant that there is a patentable distinction between Guerrera's teaching of reducing losses and the claimed control circuit biasing. Accordingly, the Examiner has not erred in the rejection of claim 1 and dependent claims 7 – 9, 17 – 20, and 46 – 51.

(3) Whether the Examiner erred in finding that Guerrera teaches or suggests the recitations of claim 8

We agree with Appellant that the Examiner erred with respect to this issue and therefore we do not sustain the Examiner's rejection of claim 8.

(4) Whether the Examiner erred in finding that Church teaches capturing energy with a first energy storage device and storing the captured energy with a second energy storage device

Claim 31 recites both "capturing, by [a] first energy storage device, energy" and "a second energy storage device . . . to store the captured energy" (Claims App'x 28 – 29) (emphasis added). We agree with Appellant that these recitations require a transfer of energy from the first energy storage device to the second energy storage device.

Appellant's application discloses the use of capacitors as the claimed energy storage devices (App. Br. 3; Spec. Figs. 9 – 14); however, we do not agree with the Examiner that Church's capacitors (Fig. 2, refs.102, 104) function in the claimed manner. Church discloses that "[i]n operation, the capacitors 102, 104 have generally equal values" (col. 7, ll. 56 – 57). The

capacitors having "generally equal values" is evidence that energy is not transferred from one capacitor to another in Church.

Accordingly, we agree with Appellant that the Examiner erred with respect to this issue and therefore we do not sustain the Examiner's rejection of claim 31, claims 39 and 43 which have similar claim recitations, and dependent claims 32 – 38, 40 – 42, 44, and 45.

(5) Whether the Examiner erred in finding that the combination of Guerrera and Dan-Harry teaches or suggests an AC switching circuit configured to switch a current limiting device into circuit when a snubbing capacitor is reset

We agree with Appellant that the Examiner erred with respect to this issue and therefore we do not sustain the Examiner's rejection of claim 47, claim 53 which has similar recitations, and dependent claims 48 – 51 and 54 – 59.

(6) Whether the Examiner erred in finding that Guerrera teaches a first transistor and a second transistor having source terminals connected in common

We do not agree with Appellant that Guerrera fails to show two transistors having source terminals connected in common. Based on a reasonably broad interpretation of "connected in common," it is sufficient that Guerrera disclose source terminals of the transistors being connected to each other, even if other components are part of that connection. Guerrera depicts two transistors 40 and 46 having source terminals connected together, with diodes 54 and 66, capacitor 58, and inductor 44 as part of that connection (Fig. 2).

Because Guerrera's transistors 40 and 46 are connected in common, we do not agree that there was any error with respect to this issue in the Examiner's rejection of claim 52. We also do not agree that there was any

error in the Examiner's rejection of claim 46, which is rejected based on the teachings and suggestions of Guerrera (Ans. 5) and which has similar recitations as those found in claim 52.

CONCLUSIONS OF LAW

Based on the findings of facts and analysis above, we conclude that claims 1, 7, 9, 17 – 20, and 52 are unpatentable because the Examiner did not err in finding:

1. that Guerrera teaches a biasing snubber circuit coupled to an AC switching circuit;

2. that Guerrera teaches a biasing snubber circuit captures energy from a circuit switched by a switching circuit and provides a portion of the captured energy to bias a control circuit; and

3. that Guerrera teaches a first transistor and a second transistor having source terminals connected in common.

We conclude that claims 8, 31 – 51, and 53 – 59 have not been proven unpatentable because the Examiner erred in finding:

1. that Guerrera teaches or suggests the recitations of claim 8;

2. that Church teaches capturing energy with a first energy storage device and storing the captured energy with a second energy storage device; and

3. that the combination of Guerrera and Dan-Harry teaches or suggests an AC switching circuit configured to switch a current limiting device into circuit when a snubbing capacitor is reset.

DECISION

We affirm the Examiner's decisions rejecting claims 1, 7, 9, 17 – 20, 46, and 52.

We reverse the Examiner's decisions rejecting claims 8, 31 – 51, and 53 – 59.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

ELD